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The Sri Lankan Unemployment Problem Revisited

Martin Rama

Unemployment in Sri Lanka is largely voluntary. The underlying problem is not a shortage of jobs but the artificial gap between good jobs and bad ones. Policy efforts should be aimed at reducing the gap between good and bad jobs by making product markets more competitive, reducing excessive job security, and reforming government policies on pay and employment.

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Summary findings

Sri Lanka's high unemployment rate has been attributed to a mismatch of skills, to queuing for public sector jobs, and to stringent job security regulations. But the empirical evidence supporting these explanations is weak.

Rama takes a fresh look at the country's unemployment problem, using individual records from the 1995 Labor Force Survey and time series for wages in the economy's formal and informal sectors.

He assesses, and rejects, the skills mismatch hypothesis by comparing the impact of educational attainment on the actual wages of those who have a job with the effect on the lowest acceptable wages of the unemployed.

However, he finds substantial rents associated with jobs in the public sector and in private sector activities protected by high tariffs or covered by job security regulations.

A time-series analysis of the impact of unemployment on wage increases across sectors supports the hypothesis that most of the unemployed are waiting for "good" job openings but are not interested in readily available "bad" jobs.

In short, unemployment in Sri Lanka is largely voluntary. The problem is not a shortage of jobs but the artificial gap between good and bad jobs. Policy efforts should be aimed at reducing the gap between good and bad jobs by making product markets more competitive, by reducing excessive job security, and by reforming government policies on pay and employment.

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1. Introduction

Sri Lanka has experienced two-digit unemployment rates for almost three decades. The available estimates, reported in the figure, are not strictly comparable over the years due to changes in the criteria chosen to measure unemployment (especially in 1981) and to changes in the coverage of the survey instrument used to collect the data. But overall these estimates suggest that the Sri Lankan labor market does not work well. If they are taken at face value, the unemployment rate was highest in the early 1970s, at the heyday of inward orientation and state-led development policies. In 1973, roughly one in four labor market participants was out of a job. Since then, a series of economic reforms have been implemented, including the gradual liberalization of foreign trade, starting in 1977, the creation of export processing zones (EPZs), in 1978, and the privatization of tea plantations, initiated in 1992. These reforms were associated with sustained output growth, at an average rate of almost 5 percent per year, and with a gradual decline of the unemployment rate. However, by 1997 one in ten labor force participants was still out of a job. Moreover, four in five unemployed people had been seeking a job for more than one year. These figures are a source of concern not only for economic reasons, but also because of their political implications. Frustration over jobs was at the roots of two violent uprisings by educated youth, in 1971 and 1987-89. Some fear similar events in the future if nothing is done to bring unemployment rates down.

Over the years, several explanations have been proposed for high unemployment in Sri Lanka. One of the most influential is the "skills mismatch" hypothesis, first articulated by the International Labour Organisation (Seers, 1971). According to this hypothesis, the

Sri Lankan education system produces skills that are not valued by employers, while raising the expectations of those who acquire them. As a result, the unemployed are not interested by the existing vacancies, whereas the employers are not willing to fill them with the available candidates. The mismatch is considered to be particularly severe for those who are just coming out of school, and have no work experience. The practical remedy to the unemployment problem, if the skills mismatch hypothesis is correct, is to reform the education system and to supplement it with vocational training geared to the needs of the labor market. Vocational training programs of this sort, the argument goes, would make the unemployed more "employable".

A second explanation focuses on public sector employment and pay policies. This explanation was proposed by Glewwe (1987) and discussed in more detail by Dickens and Lang (1996). In many countries, public sector jobs are characterized by more stability, higher benefits, lower effort and more prestige than their private sector counterparts. In Sri Lanka, they are also characterized by higher pay. Labor market entrants thus face an incentive to wait for job openings in the public sector. Some of them would rather remain inactive than take the available jobs out of the public sector. Others would be willing to take a "bad" job while waiting for a "good" one, if it was not for the perceived government preference for hiring the unemployed. Dickens and Lang claim that Sri Lankan public sector jobs are actually created with the deliberate purpose of alleviating the unemployment problem. Based on this second explanation, a credible reform of public sector recruitment and pay policies would be the most effective way to reduce unemployment, because it would discourage the "queuing" attitude.

Finally, a third explanation emphasizes the wedge between "good" and "bad" private sector jobs resulting from Sri Lankan labor market regulations, and especially from the Termination of Employment of Workmen (Special Provisions) Act (TEWA), passed in 1971 (Rama, 1994). The TEWA states that a worker who has spent one year or more with the same employer and has not committed a disciplinary fault cannot be legally dismissed, except with the consent of the Commissioner of Labour. The process leading to this consent may take years, during which the firm has to keep paying the salaries of the redundant worker. If and when the authorization is granted, the required compensation may amount to several years of salary. However, many workers are not subject to the TEWA. Firms with less than 15 workers are not legally subject to it. Other firms, and particularly those in the EPZs, find ways around it. As a result, some private sector jobs are precarious whereas others are almost for life. It would not be surprising if many among the unemployed were willing to queue for the latter jobs, but unwilling to take the former. According to this explanation, less stringent firing regulations enforced more evenly across firms and sectors would reduce the wedge between "good" and "bad" jobs, thus reducing the incentive to remain unemployed.

While all three explanations are appealing, the evidence to support them is mostly outdated and often weak. Consider the "skills mismatch" hypothesis. Glewwe used individual data to generate a profile of the unemployed. His results showed that the likelihood of being unemployed increased steadily with educational attainment, which could be consistent with the skills mismatch hypothesis. But his data were from a population census of 1970-71, which may be inappropriate to assess today's unemployment problem. Dickens and Lang, in turn, questioned the role of education in

explaining unemployment, using results from a household survey carried out in 1985-86. They claimed that among young males, the unemployment rate was highest for those with five to seven years of education. Since this was less than the median educational attainment for this group, they concluded that, if anything, unemployment was concentrated among those with relatively little education, which contradicts the skills mismatch hypothesis. But their analysis was based on aggregate data, and did not control for other individual characteristics. More recently, Aturupane (1997) showed that private returns to schooling were high, especially at the highest levels of education. This finding suggests that the Sri Lankan education system is relatively well geared towards the labor market. The skills mismatch hypothesis could still be valid, however, if schooling raised earnings expectations even more than it raises actual earnings. Unfortunately, no empirical evidence is available in this respect.

A similar problem arises with the alleged gap between "good" and "bad" jobs, which is central to the two other explanations of unemployment. There is no hard evidence to support the claim that public sector jobs are more attractive than their private sector counterparts. Glewwe compared average earnings across sectors and skills, to show that the government pays more than the private sector. But his comparison was for broad groups of workers, such as clerks, not for individuals with similar characteristics. Moreover, the data were for 1969, and relative earnings might have changed since then. Other comparisons involved similar positions in the public and the private sector (Bowen, 1990). While interesting, these comparisons lack generality and only involve private sector jobs in full compliance with labor market regulations, i.e. good private jobs. As regards the higher job security stemming from the TEWA, it could in fact be paid for by

the workers themselves, through lower salaries. A small survey of private sector firms suggests that at least some of the burden falls on employers, who complain bitterly about the TEWA (World Bank, 1993). But no systematic comparison of labor earnings in jobs covered and not covered by the TEWA is currently available.

The aim of this paper is to take a fresh look at the Sri Lankan unemployment problem, by assessing the three explanations summarized above, and deriving the implications for economic policy. Most of the analyses in the paper rely on individual records from the 1995 Labor Force Survey. Time series on wages in sectors covered and not covered by the TEWA are used as well. The next section reviews the criteria used to measure unemployment in Sri Lanka. It shows that the official unemployment rate is comparable to that of other countries. It also shows that the decline of young population cohorts in the coming years will only lead to a modest decline of the aggregate unemployment rate. Section 3 presents a detailed profile of the unemployed. It identifies how individual characteristics such as age, gender or educational attainment affect the probability of being unemployed. Section 4 deals with the skills mismatch hypothesis, by comparing how educational attainment affects the labor earnings of those who have a job and the lowest acceptable wage of those who are searching one. The results suggest that the education system is not behind the high unemployment rates of Sri Lanka. Section 5 measures the earnings gap between "good" and "bad" jobs. It supports the hypothesis that those who work for the public sector, or in activities protected by high tariffs, earn much more than other workers. Those who have been in their job for more than one year, and are therefore more likely to be covered by the TEWA, earn more as well. Section 6 uses aggregate data on wages over time to evaluate the hypothesis that the unemployed

are waiting for "good" job openings, but not interested in readily available "bad" jobs. It shows that high unemployment rates reduce the growth rate of wages negotiated through collective bargaining, but have no influence on the growth rate of daily wages in the informal sector of the economy. The policy implications of the analysis are derived in section 7. Aggregate data are used in this section to identify recruitment patterns by the public sector. Microeconomic data are used to generate a profile of public sector employees. The results clearly indicate that the actual hiring practices of the government are at odds with its stated policies. Section 8 concludes.

2. Measuring Unemployment

The main instrument to measure and analyze unemployment in Sri Lanka is the Labor Force Survey, produced by the Department of Census and Statistics. This survey, identified as LFS hereafter, covers the whole island except for the Northern and Eastern provinces, which are the two most severely affected by the armed conflict with the separatist Tamil "tigers". The LFS covers a total of 4,000 households per quarter, over two rounds. These households are selected based on a two-stage stratified sampling procedure with no rotation. A new random sample is therefore drawn each quarter. Most of the analyses in this paper are based on combined individual records from the four quarters in 1995. This was the most recent year for which data were available when the research started.

The LFS questionnaire is designed according to internationally accepted practices. In some developing countries, unemployment rates can be inflated due to a somewhat lax

interpretation of what job seeking means. In Tunisia, for example, housewives who declare to be willing and available to take a job, but do not take any practical step to find one, may be counted as unemployed (Rama, 1998). In Sri Lanka, by contrast, the LFS would count any person who does not have a job and did not take any action to find one in the week preceding the survey as economically inactive (DCS, 1990). Similarly, in some developing countries a person who works irregularly could be considered unemployed. In Sri Lanka, a single hour of work over the week preceding the survey is enough to be counted as employed. It follows that the high unemployment reported of Sri Lanka is not a statistical artifact.

The unemployment rate does not change much when the previous year, instead of the previous week, is used as the reference period to decide whether a person is unemployed. The LFS contains questions about work and job seeking in each of the twelve months preceding the survey. Based on the answers, the interviewer classifies the person as "usually employed", "usually unemployed" or "usually not economically active". The rate that can be calculated based on this information, called annual broad rate in what follows, is similar to the one estimated based on the previous week only, which will be called the weekly broad rate. For instance, in the 1995 LFS sample the unemployment rate of the working-age population was 12.9 percent if the annual broad definition was used, compared to 13.6 percent according to the weekly broad definition.

Moreover, the similarity of the two unemployment rates holds for every group within the working age population. Table 1 compares these rates across the 1995 LFS sample for different age groups, by gender. It shows that broad unemployment figures do not differ much depending on whether they are calculated on a weekly basis or an annual

basis. The figures are extremely high among young individuals, but decline sharply for those above 30 years of age. Similar breakdowns by education, household status and type of district (urban, rural or agricultural estates) confirm the similarity of these two unemployment rates across all population groups.

When more restrictive definitions are used, the unemployment rate drops dramatically for all population groups. One of such definitions entails counting as unemployed only those individuals who did not work in the week preceding the survey and declared that they would be willing to take "any job", meaning by that either a full-time job or a part-time job. This will be called the weekly narrow definition in what follows. Based on this definition, the unemployment rate of the 1995 LFS sample would be 3.17 percent. Table 1 shows that the unemployment rate would remain high only for those aged 15 to 24.

The contrast between high unemployment rates among youth, and low or negligible rates among the rest of the population suggests that changes in the age structure of the population could significantly alter the aggregate unemployment rate. In Sri Lanka, young population cohorts are becoming smaller due to the decline of birth rates over the last few years (Kiribanda, 1997). Could this demographic trend "solve" the unemployment problem, even if the efficiency of the labor market did not improve fundamentally? Probably not. If labor force participation rates and unemployment rates for all age and gender groups remained unchanged at their 1995 levels, the unemployment rate would only decline by 2 percentage points in the next 20 years, to reach roughly 8 percent of the labor force by 2015. However, the demographic trend does not explain the gradual decline of the unemployment rate observed since the 1970s either. This is because

young population cohorts started shrinking only very recently. The observed decline in the unemployment rate thus reflects a genuine improvement in labor market conditions, rather than a composition effect.

3. A Profile of the Unemployed

Unemployment rates are highest among the youth, but is it because they are young, because they are more educated, or because they benefit from family support to perform an extended job search? Age, education and position in the household being highly correlated, partial analyses such as that in table 1 cannot really answer this question. A more rigorous assessment requires considering all of the observable individual characteristics simultaneously. These characteristics are summarized in table 2, for both the employed and the unemployed. Because some of the analyses on the paper focus on wage earners only, one of the columns in the table refers to this latter group specifically. Also, because of the difference in unemployment rates depending on whether the broad or the narrow definition is used, the table reports the average characteristics of the unemployed under both definitions.

The results of a series of Probit regressions linking unemployment to individual characteristics are reported in tables 3 and 4. All regressions are estimated on individual records from the 1995 LFS. In the regressions in table 3 the dependent variable takes the value of one if the person is unemployed according to the weekly broad definition of unemployment, and the value of zero if the person is employed. The results are similar if the annual definition of unemployment is used instead (these results are not reported in the

paper). In the regressions in table 4 the dependent variable takes the value of one if the person is unemployed according to the weekly narrow definition of unemployment.

Age turns out to be an important determinant of unemployment. The probability of being out of a job is highest for the youth, and declines rapidly with age. Under the quadratic specification adopted for the age variable, the unemployment probability increases again as individuals grow old. At the sample mean, the unemployment probability is lowest around age 50 in urban and rural districts, and around age 45 in agricultural estates. The results are similar regardless of the definition of unemployment used.

Other determinants vary substantially depending on whether the broad or the narrow definition of unemployment is used. Based on the weekly broad definition, the probability of being unemployed is higher among the sons and daughters of the household head, particularly in urban areas. Unemployment is also more prevalent among those with secondary education. In both urban and rural districts, the probability of being unemployed is highest among those with O and A levels (equivalent to 10 and 12 years of education respectively). In urban districts, the lowest probability of unemployment is found among individuals with university degrees. This result could be due to a high demand for graduates by the private sector. However, it may also reflect the peculiar hiring policies of the government, as will be suggested below. If the weekly narrow definition of unemployment is used instead, sons and daughters are not more likely to be unemployed than household heads. And unemployment appears to be more prevalent among those who only have one to five years of schooling.

The results in tables 3 and 4 are consistent with the view that many among the unemployed are the children of caring, relatively well to do families. Young educated individuals who live with their parents are more likely to be unemployed according to the weekly broad definition, but they are not eager to take "any job", as the weekly narrow definition would imply. Their ability to stay out of a job probably stems from the willingness of Sri Lankan families to support their offspring over long periods of time. In fact, 94 percent of the unemployed surveyed by the LFS declare that their main source of income during their job search is family support, compared to only 1 percent who receive some government assistance.

Studies on poverty in Sri Lanka are consistent with this view as well. The distribution of unemployment rates by household income is bimodal, with a first peak at low levels of income, a decline for intermediate levels, and a second, higher peak at high income levels (Alailima, 1991). The pattern is similar in urban and rural districts. The first peak probably reflects "involuntary" unemployment, with low family income being the result of a jobless household head. The second one is likely to reflect a voluntary choice, with the unemployment of young household members being afforded by relatively high family income. Given the length of unemployment spells, if the bulk of unemployment was involuntary, there should be a strong association between poverty and joblessness. The labor market characteristics of the heads of poor households indicate that this is not the case: low labor earnings are a more important factor than unemployment in explaining poverty (The World Bank, 1990, 1992).

4. The Skills Mismatch Hypothesis

The skills mismatch hypothesis supposes that educated workers expect better jobs than they can actually have access to. Data on the expectations and true prospects of those who are out of a job can be used to evaluate this hypothesis. The LFS asks the unemployed to report their lowest acceptable wage. This wage can be compared to the labor earnings of individuals who have similar characteristics, but happen to have a job. If the skills mismatch hypothesis is correct, the gap between the lowest acceptable wage and the actual labor earnings of otherwise similar individuals should increase with their educational attainment.

A crude comparison between lowest acceptable wages and average labor earnings is presented in table 5. The figures in each cell are the ratios between the average lowest wage reported by the unemployed in that cell and the average labor earnings observed among employed workers in the same cell. The absolute level of these ratios should be interpreted with caution. In particular, the LFS does not collect information on the labor earnings of the self-employed, but only of salaried workers. In developing countries, most of the self-employed are in the informal sector, where productivity and pay tend to be low. Sri Lanka should be no exception in this respect. As a result, average labor earnings may be over-estimated, and the absolute level of the ratios in table 5 over-estimated. Still, the variation of these ratios across different population groups is informative.

The ratios in table 5 decline steadily with age. This pattern is observed across all population groups, in both urban and rural districts. It is observed under both the weekly broad and the weekly narrow definitions of unemployment. Table 5 also shows that those

who are willing to take "any job", meaning by that either part time or full time, are willing to accept lower wages. For almost all population groups and all districts, the ratios in table 5 are lower under the weekly narrow definition of unemployment than under the weekly broad definition.

To the extent that younger population cohorts are more educated than their predecessors, the age pattern in table 5 seems consistent with the hypothesis that education leads to unrealistic wage expectations. However, a more rigorous assessment of this hypothesis requires educational attainment to be explicitly considered. Table 6 reports the coefficients of regressions explaining both the actual labor earnings of the employed and the lowest acceptable wage of the unemployed as a function of a variety of individual characteristics, including educational attainment. To make these regressions comparable, individual characteristics that are not observable for both groups, such as work experience or occupation, are set aside. The fit of the regression is good for actual labor earnings, but poor for the lowest acceptable wage. The hypothesis that all the coefficients are the same in the first and the third columns is strongly rejected by the data, as indicated by the Chow test. One possible explanation for this rejection is that the data on the lowest acceptable wages are unreliable. Measurement error in the independent variable biases the estimated coefficients towards zero. However, the coefficients on age and gender are similar to those obtained using data on actual wages, which suggests that the data on lowest acceptable wages do contain information.

According to the results in table 6, educational attainment increases actual labor earnings more than it raises wage expectations. The education coefficients in the regression on actual labor earnings are all statistically significant, and they become larger

with the number of years of schooling. For instance, an average worker with A levels earns about two hundred percent more than a similar worker with no education at all (100x(exp(1.1049)-1) = 201.9). This gap corresponds to an average cumulative gain of almost 10 percent per year of education. Vocational training also leads to higher earnings, with the gain amounting to more than 9 percent per year. Consequently, there is nothing in table 6 to suggest that the education system of Sri Lanka, in spite of all its flaws, performs worse than that of other developing countries that have much lower unemployment rates.

It could be argued that high returns to education reflect distorted government pay policies, rather than higher labor productivity. In many developing countries, public sector pay is based on diplomas, even if those who hold them are not really more knowledgeable or productive than those who do not. The inclusion of public sector workers in the regression on actual labor earnings would then bias the education coefficients upwards. But when the regression is run for private sector workers only the results do not change substantially, as shown by the second column in table 6. On the other hand, the education coefficients in the regression on lowest acceptable wages are not significantly different from zero. It follows that the gap between the lowest acceptable wage and the average wage for workers with similar characteristics decreases with education, thus contradicting the skills mismatch hypothesis.

Other studies on education and employment tend to reject the skills mismatch hypothesis as well. Gunatilleke (1989) compared the education levels of the output of the educational system and of the net change in employment. He concluded that there was no substantial difference between the two. Kelly and Culler (1990) interviewed private sector

managers to assess whether they viewed the shortage of qualified labor as a major obstacle to the development of their enterprises. Most of the interviewees said that workers knew how to do their jobs, and acknowledged that there were plenty of good workers available. There is also abundant anecdotal evidence to suggest that Sri Lankan workers learn fast and are easy to train.

5. Good versus Bad Jobs

Two of the explanations proposed for the high unemployment rates of Sri Lanka rest on the assumption that some jobs are much more attractive than others. One of the explanations emphasizes the divide between the public sector and the rest of the economy. Public sector jobs are usually more secure than other jobs. They also provide higher benefits, such as old-age pension, and require lower effort levels. Some times, they also carry more prestige. Consequently, for workers to be indifferent between public sector jobs and other jobs, the former should pay substantially less than the latter. Whether they actually do so in Sri Lanka can be assessed by comparing the labor earnings of similar workers in and out of the public sector, based on data from the LFS. A dummy variable that takes the value of one for public sector workers is used in the analysis. Because the sectoral classification in the LFS rests on the establishment the interviewee works in, the public sector comprises state-owned enterprises in addition to government administration. In 1995, tea estates were still counted as part of the public sector.

Another explanation of high unemployment emphasizes the much higher job security enjoyed by those workers who are covered by the TEWA. Again, in a well-

functioning labor market, workers who benefit from higher job security could be expected to earn less than other, similar workers do. Lower pay would be the price to pay for higher job stability. But in practice, the difficulty to fire permanent workers may give them a substantial leverage to raise their wages, particularly in unionized firms. Whether the workers covered by the TEWA earn more or less than similar workers with no job security can be assessed based on the 1995 LFS. The TEWA only covers workers who have been for at least one year with the same employer, provided that the firm has 15 employees or more. The LFS asks the number of months the interviewee has spent in the same job (DCS, 1990). Unfortunately, it does not report the size of the firm, nor does it indicate whether the interviewee or the firm is unionized. But someone who has been with the same employer for at least one year is more likely to be covered by the TEWA. A dummy variable that takes the value of one for workers with a seniority of at least one year is therefore used as a proxy for coverage.

Finally, studies done for other countries suggest that pay is higher in sectors where competition in product markets is limited. In a small country like Sri Lanka, trade barriers are a potentially important obstacle to competition. Due to the scale of the economy, firms operating in protected sectors probably enjoy a significant market power. In a well-functioning labor market, this market power would translate into higher payments to capital. But the evidence elsewhere indicates that rent sharing between workers and employers is common. Whether Sri Lanka is an exception can be assessed by comparing labor earnings across sectors with different levels of protection. The sectoral breakdown of the 1995 LFS being quite detailed, it is possible to match each of the sectors with the corresponding tariff rate, as calculated by the World Trade Organization (WTO, 1995) for

the same year. A zero tariff rate is imputed to non-tradable sectors, but a dummy variable is introduced for each of them. Non-tradable sectors might be characterized by limited competition in product markets. If no dummy variable was introduced for them, the estimated effect of trade protection on pay would be biased downwards (in some sectors, a zero tariff rate could be associated with relatively high pay).

Table 7 reports the results of regressions explaining the log of monthly earnings as a function of both individual and job characteristics. The individual characteristics considered are the same as in the previous section, plus total work experience and occupation. Job characteristics include whether the employer is the public sector, whether the interviewee has been with the same employer for one year or more, and the tariff rate protecting the sector (plus a dummy variable for each of the non-tradable sectors). A dummy variable for payments in kind is also included in the specification. The LFS reports whether the interviewee receives payments in kind, but does not assess how much these payments are worth. In a well-functioning labor market, the coefficient on this dummy variable would provide information on the cash value of the average payment in kind. For instance, according to table 7 urban workers who receive payments in kind get 17 percent less cash (100x(exp(-0.1816) - 1) = -16.6) than those who do not. Therefore, at the sample mean the value of the payments in kind could roughly represent 17 of the net compensation.

The results in table 7 suggest that the earnings gap between public sector jobs and other jobs is substantial. Based on the coefficients in the fourth column of the table, public sector workers earn roughly 60 percent more (100x(exp(0.4673) - 1) = 59.6) than similar workers in similar jobs out of the public sector. Strictly speaking, this would be the

earnings gap at the sample mean, i.e. for a worker with the average individual characteristics of the LFS sample, with the average job seniority of the sample, in a sector protected by the average tariff of the sample. The earnings gap appears to be slightly higher in rural districts. It could be as high as 112 percent for the average worker and the average job in estates.

The results in table 7 also suggest that workers who are covered by the TEWA earn more than those who are not. In addition to job security, covered workers would get 34 percent more cash (100x(exp(0.2944) - 1) = 34.2) in the country as a whole, and 102 percent more cash in estate districts. Again, these comparisons are valid at the sample mean. Finally, the results indicate that higher tariff rates translate into higher labor earnings both in urban and rural districts. In urban districts, for instance, sectors protected by the maximum tariff rate of 35 percent pay, other things equal, 39 percent more than sectors protected by a 10 percent tariff rate (100x(exp(0.0131x(35 - 10)) - 1) = 38.7).

One of the most obvious criticisms to the results in table 7 is that workers are not randomly allocated across sectors, but rather selected into them. Suppose, for instance, that the public sector manages to attract and retain "better" workers than the private sector. In this case, the estimated public sector wage premium should not be interpreted as a rent. Studies on earnings differentials done for other developing countries have addressed this potential self-selection bias in a variety of ways (Van der Gaag and Vijverberg, 1988; Terrell, 1993; Mengistae, 1999). A relatively straightforward approach is adopted here. It is assumed that the probability for someone living in a specific district to work for the public sector, or to be covered by the TEWA, increases with the share of

the district's jobs that are in the public sector, or covered by the TEWA. But these shares should not affect the earnings gaps between jobs.

The regressions in table 8 re-estimate the determinants of labor earnings using district-level data on the public sector share of employment, and on the fraction of workers with a seniority of one year or more, to instrument the public sector job and the seniority variables. Depending on the specifications, one or both instruments are used, and one or both explanatory variables are instrumented (details are provided in the footnote). The results show that the public sector wage premium remains large and statistically significant, whereas the premium associated with TEWA coverage becomes insignificant. This drop suggests that the private sector offers job security to workers who are "better" than the average. On the other hand, the similarity of the public sector wage premia in tables 7 and 8 implies that public sector workers are just average.

Other analyses were carried out to check the robustness of the public sector wage premium. Firstly, all the regressions were re-estimated using the log of hourly earnings, instead of monthly earnings, as the dependent variable. The results, not reported here, remained basically unchanged. Secondly, the sample was split based on educational levels. The results in table 7 could be criticized on the grounds that the LFS questionnaire has only four digits for the earnings variable, so that 108 workers (out of 7,013) appear to earn 9,999 rupees per month. Most of them probably earn more than that. If very high earnings were more common out of the public sector than in it, which is plausible, the coefficient on the public sector dummy would be over-estimated. Splitting the sample by education levels allows dealing with this censorship problem, because almost all of the workers reporting monthly earnings of 9,999 rupees have university degrees. The results

in table 9 show that the earnings gaps remain roughly unaffected for workers with up to A levels, but are much less significant for workers with university degrees. Given that almost one third of the latter are affected by the censorship of the earnings variable, there are no solid grounds to claim that workers with university degrees earn more in the public sector than out of it. However, according to table 8 public sector jobs are very attractive at low education levels. For instance, workers with 5 years of schooling or less earn 94 percent more in the public sector than out of it (100x(exp(0.6628) - 1) = 94.0).

Based on these results, it is safe to conclude that jobs covered by the TEWA do not pay less, and jobs in the public sector pay more, than other jobs. Since they also carry more benefits, they have to be perceived as being more attractive. When confronted to this finding, some Sri Lankan observers object that public sector jobs are not that attractive compared to "good" private sector jobs. However, this casual observation is not incompatible with the statistical findings described above. A job in the private sector can be very attractive, particularly if this is a permanent job in a sector protected by high tariffs. It can certainly be more attractive than some public sector jobs. And it probably is for those with university degrees. But for less educated workers, most public sector jobs would still be "good" compared to other salaried jobs, and especially to temporary private sector jobs. These are the jobs most of the unemployed seem reluctant to take immediately upon their entry in the labor force.

6. Unemployment and Wage Dynamics

Another way of assessing whether some jobs are more attractive than others is to compare the effects of unemployment on wage increases across sectors. It is generally accepted that high unemployment rates translate into lower wage increases, at least in the short run. The relationship between these two variables, also known as the Phillips curve, has been corroborated by studies done for many countries, over a variety of periods. A plausible interpretation of this relationship is that the employed are more concerned about competition for their jobs in periods of high unemployment, and are therefore more willing to accept more modest pay increases. Consider, however, a segmented labor market, where good jobs are scarce whereas bad jobs abound, and where the unemployed are seeking good jobs only. In such a labor market, a high unemployment rate would be a source of concern to those who have good jobs, but it would be basically irrelevant to those who have bad jobs. Therefore, a Phillips curve could be expected for the wages paid by good jobs, but not for those paid by bad jobs.

In Sri Lanka, most of the jobs covered by the TEWA are in activities subject to collective bargaining agreements. There are 37 tri-partite Wage Boards that set minimum wages for each skill level by sector. Delegates to these Boards are chosen from among major sectoral trade unions and active sectoral guilds of private employers by the Commissioner of Labour. The resulting agreements also provide the "floor" for direct negotiations between trade unions and employers, such as the one between the Ceylon Mercantile Workers Union and some fifty firms represented by the Employers' Federation

of Ceylon. The average minimum wage set by the Wage Boards can therefore be seen as a proxy for the average wage paid by the "formal" sectors of the economy.

Workers hired on a daily basis, on the other hand, are not directly affected by collective bargaining agreements. Although these agreements apply in principle to all firms in the corresponding sector (including state corporations), they are only enforced in the formal sector of the economy. The Central Bank of Sri Lanka collects information on the daily wages of casual workers in a variety of occupations in the tea, paddy, rubber and construction sectors. Some 80 teachers scattered across the island report this information to the Central Bank on a monthly basis. With it, the Central Bank produces wage indexes for the informal sector. These indexes can be seen as an indicator of the average wage paid in "informal" activities.

Time series on the average minimum wage set by Wage Boards and the average pay of casual workers estimated by the Central Bank can be used to estimate a Phillips curve for Sri Lanka. This was first done by Rama (1994), using annual data from the 1980-1992 period. Table 10 updates the estimates using data up to 1997. The analysis in this table considers seven sectors, three of them "formal" and the rest "informal". Formal sector wages are based on the average minimum wage set by Wage Boards for agriculture, manufacturing and construction, and services. Informal sector wages are based on the average daily rate calculated by the Central Bank for casual workers in tea, paddy, rubber and construction. All four specifications in table 9 control for the inflation rate (as measured by the consumer price index for Colombo) and the unemployment rate in the same year. But they differ in the treatment of the unemployment variable and the independent term. Other regression analyses, not reported in the paper, also allowed for

varying time lags, and relied on different measures of inflation (the GDP deflator) and unemployment (urban and rural). The main results were similar.

Column (1) in table 10 estimates a Phillips curve without introducing any differentiation across sectors. In this specification, the unemployment rate does not have a statistically significant effect on wage increases. All of the other columns allow for a different effect of the unemployment rate depending on whether the sector is formal or informal. Although the point estimates vary across columns, they all show that unemployment rates have no effect on informal sector wages, but exert a downward pressure on formal sector wages. This pressure is captured by the statistically significant coefficient on the variable that interacts the unemployment rate with the formal sector dummy. What varies across columns (2) to (4) in table 11 is the specification of the independent term. Column (2) imposes the same independent term on all seven sectors; column (3) allows for a different independent term in the formal and informal sector; and column (4) for a different independent term for each of the seven sectors considered.

The results in table 10 provide additional support to the hypothesis that the unemployed are in search of good jobs, like those covered by Wage Board agreements, but are not interested in bad jobs, like those available on a daily basis. The results are also compatible with anecdotal evidence that vacancies abound for bad jobs. For instance, agricultural estates have difficulties in attracting or retaining tea pluckers and rubber tappers. Firms in the EPZ located just a few miles out of Colombo report excess demand for labor in the range of several hundred workers each. The Department of Labour estimates the total number of vacancies in EPZ firms at around 15,000. But on the other

hand, when the government Post and Telecommunications agency advertised 300 positions, 10,000 candidates applied.

7. Policy Implications

No policy reform will make the unemployment rate decline dramatically in a short period of time. Experience in other countries suggests that after a structural shock, such as economic liberalization, it may take many years for the labor market to adjust. Countries with a stellar growth performance, such as Chile or Mauritius, had two-digit unemployment rates for more than one decade after they adopted an outward-oriented economic strategy; it took them roughly two decades to reach full employment. A country with a less-than-stellar growth performance, like Sri Lanka, may need longer than that. And even in the long run, the unemployment rate could be higher than in other countries. Sri Lanka has a strong and caring family structure, possibly leading to long job search spells. Trying to artificially shorten these spells would not increase the well-being of the population.

However, the Sri Lankan labor market could be made more efficient than it currently is. Based on the analysis above, reform efforts should aim at removing the artificial benefits associated with some of the "good" jobs, and at creating the conditions for a sustained improvement in the quality of "bad" jobs. A smaller gap between the two types of jobs would reduce the payoffs to queuing, and therefore shorten the job search. More specifically, efforts should be concentrated in reforming public sector employment

and pay policies, in reducing the dispersion in the product market protection enjoyed by different sectors of the economy, and in amending or circumventing the TEWA.

Reducing the dispersion of protection rates is the least controversial of the proposed reforms. Current liberalization plans foresee a reduction of the maximum tariff rate to 15 percent in the coming years, and a reduction in the number of tariff bands, from three to two, in the short run. But tariffs are not the only product market distortion. Some activities in Sri Lanka are still characterized by legal monopolies, mostly in the hands of public sector corporations. This is the case, for instance, with the distribution of oil products. Fostering competition in these sectors could also contribute, indirectly, to a reduction in the premium paid by some artificially "good" jobs.

There is less agreement on the need to reform public sector employment and pay policies. Officially, recruitment is now done entirely on the basis of an aggregate score obtained at a written examination of one or more papers conducted by the Department of Examinations. No additional consideration is given to prior experience, employment or unemployment. Moreover, government jobs require O levels at the minimum, so that making public sector jobs less attractive would do nothing to reduce the unemployment rates observed at lower levels of education (Alailima, 1991). However, there are indications that public sector employment has grown substantially, that hiring has aimed at reducing unemployment rates among specific population groups, and that a significant portion of those recruited have less than O levels.

Table 11 reports employment figures for a series of sectors and occupations over period 1987-97. It shows that government employment has expanded steadily over time, with the armed forces and the education sector accounting for a large proportion of the

expansion. In principle, 8 years of education are required to be eligible for the army. As regards the education sector, the practice has been to recruit university graduates as teachers every time the unemployment rate of this group became too high. Announced hiring freezes have lacked credibility. For instance, in 1996 the Samurdhi poverty alleviation program recruited 35,000 workers on a fix-term basis. By 1998, about 10,000 of them had been absorbed into the government despite the explicit commitment not to extend their contracts beyond two years. Although the public sector as a whole displays a reduction in employment starting in 1994, this is due to the transfer of tea estates to the private sector, not to a change in government hiring policies.

Table 12 presents a profile of public sector workers based on the 1995 LFS sample. This table shows that almost one quarter of these workers have less than O levels. Moreover, less than half of those with less than O levels work in the administration and defense sector. It follows that public sector recruitment at relatively low levels of education is not restricted to the armed forces only. The table also shows that almost 5 percent of the public sector workers have been in their jobs for less than one year. This figure implies that recruitment remains substantial. If this recruitment were done randomly among all the unemployed, the probability of landing a public sector job in any given year would be around 8 percent.

The most controversial of the proposed policy reforms concerns current job security policies. The TEWA is possibly acting as a deterrent to create permanent jobs, because employers do not want to get stuck with workers if circumstances were to change. As a result, only those who work in large formal sector firms, and have been with the same employer for one year or more, benefit from job security. The government of Sri

Lanka has tried to circumvent the TEWA by implicitly allowing firms in the EPZs to ignore it. This approach has been highly successful in creating new jobs, as shown by table 12. But these are mainly perceived as "bad" jobs. The TEWA is bypassed in the EPZs by means of a substantial union repression, and a repressive work environment is not conducive to the creation of "good" jobs. A potentially better approach is to adopt a more flexible and expedite separation regime for new hires.

8. Conclusion

The findings in this paper suggest that unemployment in Sri Lanka is, to a large extent, voluntary. The bulk of the unemployed are young, relatively educated individuals who live with their parents and benefit from family support to perform an extended job search. The goal of this search is not just to find a job, but a relatively good job, either in the public sector or in private sector activities characterized by substantial protection, stemming from product and labor market regulations.

Voluntary unemployment is not incompatible with frustration, as years of job seeking fail to give access to one of those good jobs. Action to reduce unemployment, hence frustration among the youth, is warranted. But understanding the nature of unemployment is important to identify the policy measures that can help. In Sri Lanka, the problem is not a shortage of jobs, but rather the artificial gap between good and bad jobs. A similar interpretation has been offered for Egypt, another developing country with an unusually high unemployment rate (see Assaad, 1997). It does not follow that action should be aimed at creating more of the artificially good jobs. This would only put a

burden on the rest of the economy, through additional taxes and distortionary regulations, thus making bad jobs even worse.

Some of the policies usually recommended to deal with unemployment elsewhere, and especially in industrial countries, would be ineffective as well. An unemployment insurance scheme would not help much, because roughly two thirds of the unemployed never had a job. Income support mechanisms for the unemployed would not mitigate the problem either, as in most cases they would lead to a even more extended job search. And more training programs should not be expected to make a substantial difference, given that joblessness does not reflect a failure of the education system. Efforts should be aimed at reducing the gap between good and bad jobs by making product markets more competitive, reducing excessive job security and reforming the employment and pay policies of the government.

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Table 1

Unemployment Rates by Age (All Country)

Age	Males			Females			All		
	Weekly basis		Annual Basis (broad)	Weekly basis		Annual Basis (broad)	Weekly basis		Annual Basis (broad)
	Narrow	Broad		Narrow	Broad		Narrow	Broad	
15-19	10.33	32.25	31.06	21.60	48.76	52.49	14.26	38.55	38.88
20-24	8.37	27.28	28.70	11.55	46.33	45.64	9.45	34.90	35.36
25-29	3.03	12.67	12.39	7.03	29.51	27.58	4.21	18.26	17.27
30-34	1.19	6.33	6.15	4.55	17.84	15.80	2.18	9.90	9.06
35-39	1.71	4.80	4.13	1.52	9.04	9.89	1.65	6.25	6.08
40-44	0.68	3.21	2.50	0.42	4.51	4.24	0.60	3.62	3.04
45-49	1.20	2.01	2.46	0.80	3.15	3.51	0.37	2.33	2.75
50-54	0.32	1.59	1.61	.	1.99	1.55	0.24	1.69	1.60
55-59	.	1.43	0.49	.	2.13	.	.	1.60	0.37
60-64	.	1.20	1.21	.	3.23	1.61	.	1.60	1.29
65-69	.	2.35	1.82	.	.	7.50	.	1.89	2.93
All	2.44	9.75	9.46	4.90	21.64	20.58	3.17	13.56	12.94

Note: The definitions used for the unemployment rates are provided in the text. A dot is reported for cells with less than 100 observations.

Table 2

Average Characteristics of the Sample
by Employment Status

Individual characteristics	Employed		Unemployed, by definition	
	All	Wage Earners	Weekly Broad	Weekly Narrow
Age (in years)	37.61	35.93	24.93	24.60
Female	0.291	0.321	0.514	0.458
Sri Lankan Tamil	0.076	0.098	0.046	0.055
Indian Tamil	0.033	0.046	0.020	0.026
Moor	0.084	0.065	0.096	0.123
Other non Sinhalese	0.009	0.009	0.008	0.003
1-5 years of school	0.175	0.159	0.043	0.081
6-8 years of school	0.181	0.161	0.101	0.175
9-10 years of school	0.241	0.219	0.318	0.377
O/L	0.215	0.229	0.320	0.241
A/L	0.106	0.135	0.204	0.115
University degree or post-graduate	0.035	0.048	0.006	0.000
Vocational training (in years)	0.232	0.269	0.218	0.182
Wife or husband of household head	0.137	0.134	0.051	0.034
Son or daughter of household head	0.295	0.318	0.771	0.738
Other non-household head	0.139	0.169	0.127	0.154
Rural	0.292	0.265	0.295	0.262
Estate	0.045	0.069	0.025	0.031
Number of observations	11666	7085	1735	382

Table 3

Determinants of Unemployment
Probit regressions, based on weekly, broad definition
of unemployment; default status = employed

Independent variables	Urban	Rural	Estate	All
Age (in years)	-0.2060 ***	-0.2225 ***	-0.3007 ***	-0.2136 ***
	(-36.54)	(-25.09)	(-9.741)	(-46.62)
Age squared	0.0020 ***	0.0022 ***	0.0032 ***	0.0021 ***
	(27.47)	(18.62)	(7.004)	(35.03)
Female	0.4813 ***	0.3928 ***	0.1108	0.4492 ***
	(11.72)	(6.120)	(0.498)	(13.27)
Sri Lankan Tamil	-0.4185 ***	0.3291	-0.4777	-0.3993 ***
	(-5.534)	(1.000)	(-1.449)	(-5.867)
Indian Tamil	-0.6439 ***	-0.1389	-0.2585	-0.4480 ***
	(-4.291)	(-0.549)	(-0.790)	(-4.247)
Moor	0.0886	0.0918	0.9381	0.0939 *
	(1.551)	(0.509)	(1.149)	(1.737)
Other non Sinhalese	-0.2180	-	-	-0.2377
	(-1.365)			(1.496)
1-5 years of school	0.1839 *	0.0019	0.6809 **	0.1712 **
	(1.940)	(0.013)	(1.996)	(2.304)
6-8 years of school	-0.0617	-0.3541 **	0.7753 *	-0.0814
	(-0.568)	(-2.269)	(1.919)	(-0.961)
9-10 years of school	0.0440	0.0023	0.9621 **	0.1070
	(0.433)	(0.016)	(2.389)	(1.346)
O/L	0.2078 **	0.4076 ***	1.170 **	0.3381 ***
	(2.017)	(2.708)	(2.317)	(4.156)
A/L	0.1644	0.5718 ***	-0.0536	0.3371 ***
	(1.520)	(3.494)	(-0.065)	(3.895)
University degree or post-graduate	-0.5774 ***	-0.1689		-0.3970 **
	(-2.819)	(-0.468)		(-2.280)
Vocational training (in years)	-0.0023	-0.0592	-0.4772	-0.0100
	(0.937)	(-1.216)	(0.689)	(0.402)
Wife or husband of household head	0.0934	0.0237	-0.5191	0.0233
	(1.040)	(0.179)	(-1.241)	(0.322)
Son or daughter of household head	0.4094 ***	0.2142 **	-0.0592	0.3462 ***
	(6.006)	(2.007)	(-0.183)	(6.168)
Other non-household head	0.0179	0.0852	-0.5512	0.0271
	(0.238)	(0.683)	(-1.187)	(0.428)
Rural				-0.1043 ***
				(-2.741)
Estate				0.0015
				(0.016)
Province and quarter dummies	Yes	Yes	Yes	Yes
Number of observations	12424	5533	837	18797
Pseudo-R^2	0.6451	0.6652	0.7973	0.6534

Note: Z-values are reported in parentheses. Statistically significant coefficients at the 10, 5 and 1 % level are indicated by one, two and three asterisks respectively.

Table 4

Determinants of Unemployment
Probit regressions, based on weekly, narrow definition
of unemployment; default status = employed

Independent variables	Urban	Rural	Estate	All
Age (in years)	-0.2612 ***	-0.2860 ***	-0.4069 ***	-0.2718 ***
	(-32.33)	(-20.47)	(-8.212)	(-40.40)
Age squared	0.0025 ***	0.0028 ***	0.0043 ***	0.0026 ***
	(24.63)	(15.18)	(6.846)	(30.90)
Female	0.3532 ***	0.3979 ***	-0.2603	0.3415 ***
	(5.663)	(3.916)	(-0.731)	(6.617)
Sri Lankan Tamil	-0.3761 ***	-0.3345	-0.6182	-0.4199 ***
	(-3.420)	(-0.556)	(-1.235)	(-4.185)
Indian Tamil	-0.2758	-0.2473	-0.6196	-0.3565 **
	(-1.389)	(-0.679)	(-1.319)	(-2.404)
Moor	0.2030 **	-0.0285		0.1891 **
	(2.449)	(-0.087)		(2.351)
Other non Sinhalese	-0.3875			-0.4660 *
	(-1.502)			(-1.783)
1-5 years of school	0.3475 ***	0.1154	1.0547 **	0.3406 ***
	(2.918)	(0.538)	(2.131)	(3.474)
6-8 years of school	-0.1138	-0.5606 **	0.9730	-0.1614
	(-0.768)	(-2.272)	(1.549)	(-1.340)
9-10 years of school	-0.2081	-0.2307	0.8332	-0.1205
	(-1.492)	(-1.006)	(1.310)	(-1.066)
O/L	-0.0350	-0.1583	1.338	0.0225
	(-0.241)	(-0.626)	(1.562)	(0.187)
A/L	-0.1337	-0.2239		-0.0714
	(-0.835)	(-0.757)		(-0.527)
University degree or post-graduate				
Vocational training (in years)	-0.0143	0.1009		0.0246
	(-0.248)	(1.231)		(0.637)
Wife or husband of household head	-0.2504	0.0149	-0.8495	-0.2800 *
	(-1.343)	(0.050)	(-1.132)	(-1.876)
Son or daughter of household head	-0.0252	0.1377	-0.5598	-0.0333
	(-0.222)	(0.580)	(-1.132)	(-0.340)
Other non-household head	-0.3546 ***	0.2376	-1.015	-0.2556 **
	(-2.839)	(0.933)	(-1.464)	(-2.384)
Rural				-0.2273 ***
				(-3.730)
Estate				0.0393
				(0.289)
Province and quarter dummies	Yes	Yes	Yes	Yes
Number of observations	11159	5070	780	17036
Pseudo-R^2	0.8394	0.8693	0.9065	0.8485

Note: Z-values are reported in parentheses. Statistically significant coefficients at the 10, 5 and 1 % level are indicated by one, two and three asterisks respectively.

Table 5

Lowest Acceptable Wage over Average Wage by Age

Unemp-Loyment defi-nition	Age Group	Males			Females			All		
		Urban	Rural	All Country	Urban	Rural	All Country	Urban	Rural	All country
Weekly Broad	15-19	1.89	1.61	1.78	.	.	.	1.77	1.52	1.69
	20-24	1.26	1.52	1.35	1.17	1.25	1.22	1.21	1.39	1.28
	25-29	1.20	1.41	1.27	1.03	1.25	1.12	1.09	1.30	1.17
	15-64	1.02	1.25	1.10	0.93	1.21	1.05	0.97	1.20	1.05
Weekly Narrow	15-19	.	.	.	.	.	.	1.68	.	1.61
	20-24	1.24	.	1.33	.	.	1.12	1.19	.	1.24
	25-29	.	.	.	.	.	.	1.07	.	1.13
	15-64	0.99	1.17	1.05	0.88	.	0.96	0.93	1.10	1.00

Note: A dot is reported for cells with less than 50 employed or unemployed persons.

Table 6

Determinants of Actual and Reservation Wages (All Country)
OLS regressions; based on log of wage in first job
and/or log of lowest acceptable wage; both in Rs. per month

Independent variables	All employed (actual wage)	Private sector (actual wage)	Unemployed (lowest wage)	All
Age (in years)	0.0068 ***	0.0045 ***	0.0061 **	0.0045 ***
	(5.881)	(3.093)	(2.356)	(4.268)
Female	-0.2115 ***	-0.2542 ***	-0.1727 ***	-0.1700 ***
	(-7.408)	(-6.787)	(-5.569)	(-7.366)
Sri Lankan Tamil	-0.0694	-0.0948 *	0.1074	-0.0654 *
	(-1.634)	(-1.789)	(1.434)	(-1.722)
Indian Tamil	0.0229	0.0341	0.2318 *	0.0236
	(0.363)	(0.461)	(1.915)	(0.415)
Moor	0.0001	0.0042	0.1104 **	0.0449
	(0.002)	(0.073)	(2.144)	(1.201)
Other non Sinhalese	-0.4555 ***	-0.5570 ***	0.3114 *	-0.3119 ***
	(-3.915)	(-4.056)	(1.900)	(-3.095)
1-5 years of school	0.1201 **	0.1061	-0.1467	0.1454 ***
	(2.098)	(1.625)	(-0.747)	(2.709)
6-8 years of school	0.3374 ***	0.3209 ***	-0.0767	0.3888 ***
	(5.797)	(4.799)	(-0.405)	(7.196)
9-10 years of school	0.5393 ***	0.4718 ***	-0.0298	0.6091 ***
	(9.377)	(7.053)	(-0.161)	(11.51)
O/L	0.8560 ***	0.7009 ***	-0.0361	0.8440 ***
	(14.92)	(10.064)	(-0.195)	(15.97)
A/L	1.1049 ***	0.9764 ***	0.1147	1.0628 ***
	(18.123)	(11.857)	(0.614)	(19.20)
University degree or post-graduate	1.3747 ***	1.2410 ***	0.4254	1.3713 ***
	(18.780)	(8.895)	(1.643)	(20.00)
Vocational training (in years)	0.0916 ***	0.0805 ***	0.0059	0.0802 ***
	(6.229)	(3.281)	(0.251)	(6.188)
Wife or husband of household head	0.0382	-0.0140	0.0066	0.0149
	(0.918)	(-0.238)	(0.068)	(0.401)
Son or daughter of household head	-0.0555 *	-0.0330	0.0590	-0.0147
	(-1.703)	(-0.771)	(0.741)	(-0.504)
Other non-household head	-0.1017 ***	-0.1102 ***	0.1218	-0.0875 ***
	(-2.828)	(-2.383)	(1.437)	(-2.702)
Rural	-0.1664 ***	-0.2056 ***	0.0065	-0.1425 ***
	(-5.899)	(-5.435)	(0.184)	(-5.988)
Estate	-0.0619	0.0155	-0.1654	-0.0756
	(-1.143)	(0.235)	(-1.527)	(-1.565)
Province and quarter dummies	Yes	Yes	Yes	Yes
Number of observations	7085	4793	1733	8818
Adjusted R^2	0.2022	0.1354	0.0505	0.1730
Chow test				10.314 ***

Note: T-values are reported in parentheses. Statistically significant coefficients at the 10, 5 and 1 % level are indicated by one, two and three asterisks respectively.

Table 7

Determinants of Labor Earnings
OLS regressions; based on log of Rs. per month in first job

Independent variables	Urban	Rural	Estate	All
Age (in years)	0.0008	0.0070**	0.0090*	0.0017
	(0.534)	(2.308)	(1.805)	(1.309)
Experience (in years)	0.0083***	-0.0024	-0.0039	0.0055***
	(4.258)	(-0.664)	(-0.798)	(3.380)
Female	-0.2075***	-0.2175***	-0.1770*	-0.2118***
	(-6.048)	(-3.190)	(-1.691)	(-7.070)
Sri Lankan Tamil	0.0425	-0.3578	-0.2429**	-0.0257
	(0.938)	(-1.447)	(-2.121)	(-0.6090)
Indian Tamil	0.0577	0.0730	-0.1937	0.0716
	(0.705)	(0.308)	(-1.549)	(1.151)
Moor	0.0191	-0.0227	-0.6888	-0.0114
	(0.421)	(-0.127)	(-1.273)	(-0.250)
Other non Sinhalese	-0.4230***	0.1974		-0.4391***
	(-3.849)	(0.193)		(-3.812)
1-5 years of school	0.1449*	0.0453	-0.0662	0.0805
	(1.842)	(0.369)	(-0.675)	(1.4270)
6-8 years of school	0.3046***	0.2189*	-0.0437	0.2437***
	(3.888)	(1.755)	(-0.367)	(4.227)
9-10 years of school	0.3783***	0.3860***	-0.1059	0.3396***
	(4.851)	(3.080)	(-0.698)	(5.835)
O/L	0.5909***	0.4204***	0.5868**	0.5172***
	(7.424)	(3.170)	(2.449)	(8.522)
A/L	0.7343***	0.4859***	0.4124	0.6484***
	(8.613)	(3.150)	(1.065)	(9.621)
University degree or post-graduate	0.9368***	0.6434***	0.0330	0.8528***
	(9.650)	(3.088)	(0.038)	(10.497)
Vocational training (in years)	0.0711***	0.0280	0.2524*	0.0633***
	(4.413)	(0.756)	(1.715)	(4.214)

(Continued)

Table 7 (Continued)

Independent variables	Urban	Rural	Estate	All
Wife or husband of household head	0.0332	-0.1342	0.1584	0.0185
	(0.673)	(-1.472)	(1.368)	(0.451)
Son or daughter of household head	-0.0597	-0.0513	0.0736	-0.0580
	(-1.605)	(-0.723)	(0.610)	(-1.795)
Other non-household head	-0.0470	-0.1930**	-0.0605	-0.0736**
	(-1.165)	(-2.236)	(-0.365)	(-2.034)
Public sector job	0.4462***	0.4937***	0.7507***	0.4673***
	(7.572)	(4.151)	(3.608)	(9.039)
1 or more years of seniority	0.2800***	0.2333**	0.7047***	0.2944***
	(5.497)	(2.459)	(4.156)	(6.582)
Tariff	0.0131***	0.0177***	0.0047	0.0130***
	(4.124)	(3.708)	(0.504)	(5.196)
Receives payments in kind	-0.1816***	0.0538	0.1718	-0.0867***
	(-4.888)	(0.845)	(1.877)	(-2.896)
Rural				-0.1246***
				(-4.446)
Estate				-0.0174
				(-0.310)
Sector, occupation, province And quarter dummies	Yes	Yes	Yes	Yes
Number of observations	4659	1869	485	7013
Adjusted R^2	0.2395	0.2381	0.1819	0.2431

Note: In the 2SLS column, the public sector job and the seniority variables are replaced by their predicted values, using the district-level shares of public sector jobs and long-term jobs as instruments. T-values are reported in parentheses. Statistically significant coefficients at the 10, 5 and 1 % level are indicated by one, two and three asterisks respectively.

Table 8

Determinants of Labor Earnings Correcting for Self-Selection (All Country)
2SLS regressions; based on log of Rs. per month in first job

Independent variables	Specification			
	(1)	(2)	(3)	(4)
Age (in years)	0.0018	0.0018	0.0018	0.0013
	(1.337)	(1.359)	(1.242)	(0.873)
Experience (in years)	0.0065 ***	0.0064 ***	0.0076 ***	0.0049 *
	(3.068)	(2.999)	(4.604)	(1.715)
Female	-0.2164 ***	-0.2161 ***	-0.2187 ***	-0.2018 ***
	(-7.149)	(-7.141)	(-7.090)	(-6.206)
Sri Lankan Tamil	-0.0261	-0.0246	-0.0335	-0.0304
	(0.553)	(-0.560)	(-0.765)	(-0.686)
Indian Tamil	0.1019	0.1062	0.0628	0.0588
	(1.430)	(1.493)	(0.771)	(0.720)
Moor	0.0157	0.0181	-0.0089	-0.0291
	(0.317)	(0.366)	(-0.143)	(-0.458)
Other non Sinhalese	-0.4341 ***	-0.4274 ***	-0.4853 ***	-0.4290 ***
	(-3.409)	(-3.363)	(-4.015)	(-3.378)
1-5 years of school	0.0928	0.0925	0.0886	0.0782
	(1.636)	(1.630)	(1.552)	(1.348)
6-8 years of school	0.2452 ***	0.2439 ***	0.2506 ***	0.2512 ***
	(4.168)	(4.147)	(4.255)	(4.248)
9-10 years of school	0.3223 ***	0.3184 ***	0.3498 ***	0.3642 ***
	(4.890)	(4.839)	(4.592)	(4.769)
O/L	0.4820 ***	0.4758 ***	0.5317 ***	0.5541 ***
	(6.176)	(6.117)	(5.222)	(5.419)
A/L	0.6117 ***	0.6044 ***	0.6691 ***	0.6863 ***
	(6.918)	(6.863)	(5.978)	(6.117)
University degree or post-graduate	0.8033 ***	0.7948 ***	0.8735 ***	0.8987 ***
	(7.652)	(7.599)	(6.409)	(6.569)
Vocational training (in years)	0.0573 ***	0.0569 ***	0.0624 ***	0.0656 ***
	(3.711)	(3.690)	(3.696)	(3.839)

(Continued)

Table 8 (Continued)

Independent variables	Specification			
	(1)	(2)	(3)	(4)
Wife or husband of household head	0.0133	0.0120	0.0237	0.0223
	(0.312)	(0.281)	(0.547)	(0.512)
Son or daughter of household head	-0.0450	-0.0441	-0.0525	-0.0728 *
	(-1.356)	(-1.329)	(-1.329)	(-1.777)
Other non-household head	-0.0722 *	-0.0708 *	-0.0744 *	-0.0860 **
	(-1.910)	(-1.874)	(-1.872)	(-2.161)
Public sector job	0.3486 *	0.3740 *	0.1995 ***	0.5831 **
	(1.731)	(1.875)	(6.081)	(2.230)
1 or more years of seniority	-0.0085	-0.0082	0.0406	0.6076
	(-0.303)	(-0.291)	(0.104)	(1.182)
Tariff	0.0129 ***	0.0129 ***	0.0128 ***	0.0130 ***
	(5.099)	(5.118)	(5.076)	(5.155)
Receives payments in kind	-0.1035 ***	-0.1038 ***	-0.0945 ***	-0.1045 ***
	(-3.442)	(-3.453)	(-3.147)	(-3.476)
Rural	-0.1213 ***	-0.1211 ***	-0.1274 ***	-0.1172 ***
	(-4.294)	(-4.288)	(-4.525)	(-4.129)
Estate	0.0106	0.0109	-0.0131	-0.0021
	(0.189)	(0.193)	(-0.230)	(-0.036)
Sector, occupation, province And quarter dummies	Yes	Yes	Yes	Yes
Number of observations	7013	7013	7013	7013
Adjusted R^2	0.2346	0.2346	0.2383	0.2348

Note: The chosen instruments are the shares of the public sector and of jobs with a seniority of one year or more in total employment (salaried or not) at the district level. Only the former instrument is used in specification (1); both instruments are used elsewhere. In specifications (1) and (2) only the public sector job variable is replaced by its predicted value. In specification (3) only the seniority variable is replaced. Both variables are instrumented in specification (4). Statistically significant coefficients at the 10, 5 and 1 % level are indicated by one, two and three asterisks respectively.

Table 9

Determinants of Labor Earnings by Education Level
OLS regressions; based on log of Rs. per month in first job

Independent variables	Education level			
	5 years or less	6 to 10 years	O/L or A/L	Degree or more
Age (in years)	0.0038	0.0025	-0.0011	0.0198 **
	(1.440)	(1.181)	(-0.444)	(2.563)
Experience (in years)	0.0004	0.0034	0.0109 ***	-0.0048
	(0.112)	(1.205)	(4.000)	(-0.639)
Female	-0.3398 ***	-0.1876 ***	-0.1427 ***	-0.2392
	(-4.492)	(-3.476)	(-3.345)	(-1.625)
Sri Lankan Tamil	-0.0822	0.0455	-0.0769	0.0299
	(-0.918)	(0.612)	(-1.130)	(0.157)
Indian Tamil	0.0782	0.1222	-0.0428	-0.0260
	(0.719)	(1.131)	(-0.270)	(-0.031)
Moor	0.0510	0.0489	-0.1108	-0.2370
	(0.408)	(0.688)	(-1.637)	(-1.104)
Other non Sinhalese	0.2711	0.2311	-0.6792 ***	-3.978 ***
	(0.676)	(1.187)	(-4.417)	(-9.355)
Vocational training (in years)	0.0371	0.0420	0.0615 ***	0.0760 **
	(0.469)	(1.248)	(3.420)	(2.215)
Wife or husband of household head	0.0736	-0.1684 **	0.0068	0.1160
	(0.774)	(-2.193)	(0.112)	(0.657)
Son or daughter of household head	-0.0728	-0.0483	-0.1033 **	-0.1328
	(-0.860)	(-0.942)	(-2.071)	(-0.798)
Other non-household head	-0.1743*	-0.0133	-0.1381**	-0.1055
	(-1.767)	(-0.232)	(-2.517)	(-0.618)

(Continued)

Table 9 (Continued)

Independent variables	Education level			
	5 years or less	6 to 10 years	O/L or A/L	Degree or more
Public sector job	0.6628 ***	0.4250 ***	0.5218 ***	0.6858 *
	(4.471)	(5.134)	(6.756)	(1.942)
1 or more years of seniority	0.3898***	0.1894 ***	0.4266 ***	0.8793 **
	(3.481)	(2.879)	(6.047)	(2.466)
Tariff	0.0026	0.0187 ***	0.0164 ***	-0.0131
	(0.546)	(4.743)	(3.204)	(-0.478)
Receives payments in kind	-0.1254**	-0.0951 **	-0.0320	0.3495
	(-1.910)	(-1.954)	(-0.661)	(1.527)
Rural	-0.2335 ***	-0.0378	-0.1222 ***	-0.0664
	(-2.917)	(-0.848)	(-2.979)	(-0.487)
Estate	0.1836*	-0.2317**	-0.0165	-0.8825
	(1.734)	(-2.392)	(-0.122)	(-0.967)
Sector (if not tradable), occupation, Province and quarter dummies	Yes	Yes	Yes	Yes
Number of observations	1452	2674	2552	334
Adjusted R^2	0.0988	0.1011	0.1748	0.2213

Note: T-values are reported in parentheses. Statistically significant coefficients at the 10, 5 and 1 % level are indicated by one and two asterisks respectively.

Table 10

Effects of Unemployment on Nominal Wage Increases
OLS regressions; with the change in the log of
nominal wages by sector as the dependent variable

	Specification			
Independent variables	(1)	(2)	(3)	(4)
Inflation rate (change in log of Colombo consumer prices)	0.6495 *** (3.844)	0.6749 *** (4.114)	0.6370 *** (3.870)	0.6370 *** (3.790)
Unemployment rate (in % of labor force)	0.0010 (0.232)	0.0004 (0.092)	0.0070 (1.164)	0.0070 (1.140)
Unemployment rate x Formal sector		-0.0022 ** (-2.432)	-0.0132 * (-1.803)	-0.0132 * (-1.766)
Independent term	0.0299 (0.582)	0.0511 (0.961)	-0.0415 (-0.513)	
Independent term x Formal sector			0.1580 (1.510)	
Sectoral dummies	No	No	No	Yes
Number of observations	79	79	79	79
Adjusted R^2	0.1953	0.2442	0.2569	0.2254

Note: T-values are reported in parentheses. Statistically significant coefficients at the 10, 5 and 1 % level are indicated by one, two and three asterisks respectively.

Table 11

Total Employment by Sectors
In thousands of workers

	Public sector						Private sector		Total employment
Year	Teachers	Health Personnel	Armed Forces	Total Government	Corporations & companies	Total (a)	Export processing zone	Total	
1987	140	29		513		1266	51		
1988	140	30	70	536		1289	55		
1989	166	37		589		1339	61	3632	4971
1990	178	35		649		1318	71	3633	4951
1991	171	30		568		1307	85	3777	5084
1992	176	32		653		1291	104	3868	5159
1993	187	34	151	676	160	1295	122	3932	5227
1994	188	37		700	160	1325	135	3990	5315
1995	189	40		738	161	1307	233	4126	5433
1996	189	41	235	752	166	1161	242	4374	5535
1997	181	45		762		1072	258	4519	5591

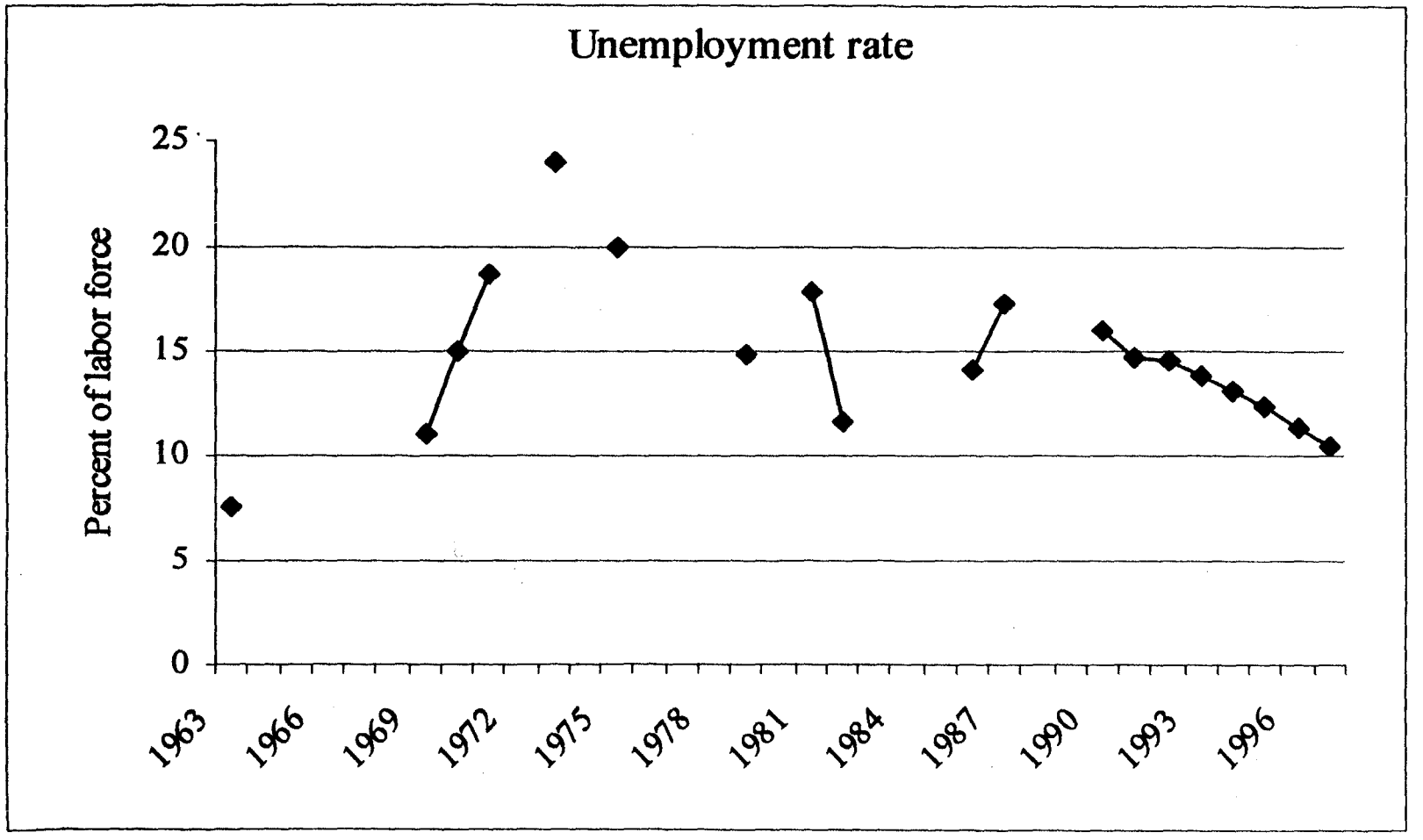
(a) The decline in public sector employment starting in 1994 is due to the privatization of tea plantations.

Source: Constructed with data from Central Bank of Sri Lanka, the Department of Census and Statistics and Ministry of Finance, and Kelegama (1998).

Table 12

The Structure of Employment in the Public Sector
In percent; based on the 1995 Labor Force Survey

	Education level				
	Up to 5 years	6-8 years	9-10 years	O/L and up	Total
Males	60.7	83.6	83.7	55.9	62.3
Females	39.3	16.4	16.3	44.1	37.7
Total	100.0	100.0	100.00	100.00	100.00
15-19 years old	5.7	1.4	1.9	0.4	1.0
20-24 years old	2.5	5.7	13.6	6.2	7.1
25-29 years old	9.8	8.6	14.4	16.0	15.0
30 years and above	82.0	84.3	70.1	77.4	77.0
Total	100.0	100.0	100.0	100.0	100.0
Less than one year seniority	3.3	2.1	5.1	5.0	4.8
One or more years	96.7	97.9	94.9	95.0	95.2
Total	100.0	100.0	100.0	100.0	100.0
Estates	15.6	10.7	1.3	0.1	1.8
Other agriculture	13.9	9.3	7.8	4.4	5.8
Transportation	4.9	11.4	19.3	7.4	9.4
Administration and defense	40.2	40.0	42.0	31.4	34.1
Education	2.5	2.1	5.9	32.5	24.8
Health	1.6	5.0	9.1	9.2	8.5
Others	21.3	21.4	14.7	15.1	15.7
Total	100.0	100.0	100.0	100.0	100.0
Total	5.3	6.1	16.2	72.5	100.0



Source: based on Kiribanda (1997) and data from the Department of Census and Statistics.

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